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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,915	01/05/2004	Akihiko Okumura	HITA.0487	1978

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EXAMINER

VANORE, DAVID A

ART UNIT	PAPER NUMBER
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2881

DATE MAILED: 09/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/750,915

Applicant(s)

OKUMURA ET AL.

Examiner

David A. Vanore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 11-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 11-16 is/are rejected.
- 7) ☒ Claim(s) 17-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed August 2, 2005 have been fully considered but they are not persuasive.
2. The applicant argues with respect to the prior art of Wang et al. (USPN 6,627,883) at page 7 of the response in the second paragraph that Wang fails to describe a "3D" quadrupole. Though the applicant is apparently trying to draw a distinction between the quadrupole of the prior art and the instant invention, upon review of the disclosure by the applicant, there is no clear definition of a "3D" quadrupole upon which the argument that no such teaching is present in the prior art can be based. The prior art quadrupole is, in the opinion of the examiner a three dimensional quadrupole as it is comprised of multipole elements and functions as a collision cell as well as a trap as pointed out in the previous action, where the mode of operation previously pointed out and described at Col. 17 does not restrict the operation of quadrupole (161) to a two dimensional mode and further discusses the use of quadrupole 161 as a collision cell operating in an RF mode in which ions are caused to collide and dissociate via energetic collisions. Therefore, there is no rationale in the prior art or in the disclosure to support the assertion that the prior art of Wang et al. is not a three dimensional ion trap.
3. Secondly, the applicant asserts at paragraphs 3-5 of page 7, bridging to paragraph 2 on page 8 that gas pressures are not controlled independently in Wang et

al. or in Whitehouse et al. (USPN 5,652,427). The examiner disagrees with this assertion.

4. With respect to the Wang et al. reference, Wang et al. discloses pumping regions (164-168) which are differentially pumped, meaning each has its own associated pumping means on means to associate the gas pressure therein. The ion guiding means disclosed in Wang et al. and in Whitehouse et al. pass ions from one pumping stage to the other. Therefore, when a quantity of ion are introduced from one region to the next, there is a pressure drop from the source region, and a pressure increase in the next region until or unless the pumping means associated with said region makes a correction.

5. The fundamental principle, however, is that that the introduction of more particles from one region to the next changes the pressure in said regions.

6. Therefore, the device and method of the prior art, provides for the control of the pressure in a first and second region by a mass filter where the mass filter moves ions in between pumped regions at different pressures.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4 and 11-14 stand rejected under 35 U.S.C. 102(e) as being clearly anticipated by Wang et al. (USPN 6,627,883 B2).

Regarding claims 1 and 11, Wang et al. teaches a mass spectrometer and method of use where ions are generated by an ion source (151), the ions are then passed to a mass filtering means (169) which selects a ions of a desired mass to charge ratio (Col. 18 Lines 17-27), the selected ions then being passed to a three dimensional quadrupole ion trap (161 and Col. 17 Lines 5-36) in which ions are selectively fragmented, the fragments then being passed to Time of Flight Mass Spectrometer (163) which accelerates ion fragments (Col. 17 Lines 36-67) towards a detection means and thereby measures their time of flight. Wang et al. further teaches that the mass filter is situated in a pressure region (168) and that the ion trap is situated within a different pressure region (164) and that the pressure in region (168) is held at 4×10^{-5} mbar and that the pressure in region (164) is set to 4×10^{-3} mbar when operating in MS/MS mode (Note Col. 20 Lines 9-10 and Col. 11 Line 33).

Regarding claims 2 and 12, as pointed out above, the gas pressure in the mass filter region is lower than the gas pressure in the ion trap region.

Regarding claims 3-4 and 13-14, as pointed out above, the ions are fragmented, or dissociated, in an ion trap (161) and, Time of Flight Mass Spectrometry is used to analyze the fragments.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-6 and 15-16 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. as applied to claims 1, 2, 11, and 12 above, and further in view of Whitehouse et al. (USPN 5,652,427).

Wang et al. teaches all the required limitations of claims 1, 2, 11, and 12 as pointed out above, and further teaches a multi-stage mass filter comprising three independently controllable quadrupole elements (186, 185, and 188 and Col. 16 Lines 45-63).

Wang et al. fails to teach that the second stage of the mass filter has a lower pressure than the first and third stages.

Whitehouse et al. teaches a multistage quadrupole (Fig. 14) where each stage is independently pumped to control the pressure in each stage. (Note Col. 5 Lines 14-40).

Whitehouse et al. modifies the multistage mass filter of Wang et al. such that each separate region is separately pumped so that the second stage of the mass filter may be at a lower pressure than the first and third stages.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to pump each stage of the mass filter of Wang et al. separately

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such that the pressure in the different stages are selectable because Whitehouse et al. teaches that such a design affords better ion transport, better control of ion energy, and a smaller beam diameter (Col. 5 Lines 37-40).

Allowable Subject Matter

Claims 17 –20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The main reason for indicating that claims 17 and 19 contain allowable subject matter is that the prior art does not teach the method of selecting an ion species for isolation in a mass analysis means. The most relevant teaching to the use of isolation resolution is USPN 5,696,376 to Doroshenko et al. At paragraph 97 of the Doroshenko et al. patent, a method for controlling isolation resolution by altering the mass scan rate is briefly discussed. There is not a discussion of selecting peaks based on the isolation resolution.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Vanore whose telephone number is (571) 272-2483. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (571) 272-2477. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David A Vanore
Patent Examiner
Art Unit 2881

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